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II. *Extracts from the Mualiját-i-Dará-Shekohí* ;* selected and translated
by Major DAVID PRICE, M.R.A.S.

Read March 6, 1830.

TREATISE the Fortieth, comprehending twenty-four discourses on the subject of speech and writing, and the senses external and internal; with, under God's assistance, the preliminary chapter of the *Zád-ul-Musafarín*, composed by Hakím Násar Khosru, surnamed *Hujat*, the Guide.†

* The *Mualiját-i-Dará Shekohí*, a work of no common magnitude or importance, is a compilation, in three folio volumes, extending through not less than 3338 pages; and contains treatises, or discourses, not only on all the diseases to which the human frame is liable, with their corresponding remedies, but also on almost every subject within the compass of human understanding. The compiler, *Hakim Nur-ud-dín Shirází*, who appears to have been either grandson or sister's son of the enlightened Abul Fazel, asserts, in his preface, that he commenced his work A. H. 1052, in the fourteenth year of the reign of Shah Jehán (corresponding with A.D. 1642, the sixteenth of Charles the First of England); and that he brought it to a conclusion A.H. 1056, having thus been only four years on his laborious undertaking. Both these dates are respectively comprised (the Persian characters being numerically applied) in the two following sentences:—

علاجات دارا شكوهي *Ilájat-i-Dará Shekohí*. “The Medical Remedies of Dara Shekoh, and
این طب عجیب به از جام کیتی نماشده *in tib ajíb be az jám gítí numá-shudch*. “This physical wonder is to be preferred to the mirror which reflects the world.”—The work may be regarded as an Indian encyclopædia; and the articles here given from it are the more curious, as the copy in Major Price's possession, from which they are taken, is supposed to be the only one in Europe, unless it be that which was made from it, about thirty years ago by M. Bruys, formerly a French resident at Surat, for the library of the King of France.

† Hakím Násar-ibn Khosru, the author of the *Zád-ul-Musafarín*, or Traveller's Viaticum, from which the compiler of the *Mualiját-i-Dará Shekohí* has so largely borrowed, was a genuine Khoresh, and must have written under the short reign of *Ul-Wathek*, the ninth khalif of the house of *Abbas*, who ruled over the Musalman world between the years 840 and 847 of the Christian era, when Ethelwolf, the son of Egbert, sat on the throne of England. He is said to have been particularly distinguished by his protection and patronage of the unfortunate but still venerated race of *Fatima*. Ali Rezza, the eighth imám, and great-grandfather of Nasir-ibu Khosru, died under the reign of Ul-Mamun, A.D. 818. The tract here given is evidently formed on the system of Aristotle, and the other Greek philosophers, some of whose

This work, which comprises seven-and-twenty parts or dissertations (in the original), I have been contented to bring under four discourses, or lectures, as a sufficient conclusion to the key of my dissertation on the repository of meanings. It is a composition of not less than *eight hundred years* standing, by that genuine philosopher and guide to the true principles of science whose name is above recorded, and whom we acknowledge to have been a lineal and no remote descendant of our venerated Prophet, and who continues to the present day to be the master and instructor of the wisest of the moderns in the sphere of the understanding. To his descent we have the testimony of his own words in the following couplet:—"I, who am the Prophet's truest heir—I, Nasar, the son of Khosru, son of *Háreth*." Now *Háreth* was one among the children of Khorasan's royal Imám: accordingly, all such as have treated on the knowledge of things appertaining to the faculties of the human understanding, have diligently directed their studies to this excellent work, and thus acquired for themselves distinguished renown.

For myself, let me observe, that although in some things the following discourse may, from unavoidable repetition, have carried the subject to an inconvenient length; yet, reflecting that things repeated stand confirmed, and paying a due regard to the advancement of knowledge, I trust that I shall be entitled to indulgence, remembering that to do a thing well it must be thoroughly done. He therefore that, as far as it is intelligible, has derived instruction or entertainment from the performance, let him take it in good part, and let what is deficient be ascribed to the incompetence of the author. I shall now proceed to my object; and first, to the *Dibáchah*, or prefatory discourse of the *Zád-ul-Musáfarín*.

Eternal praise to that Being, who is the creator of the essences of all things, whether visible or unseen, who holds at his nod the circumstances of all time and position; who is supreme above all question of what and

works are known to have been translated into Arabic under the reign of Ul-Mamun. It exhibits a curious specimen of the manner in which abstract speculations were treated in the East at so remote a period, about the middle of the ninth century, and the opinions then entertained of the operations of the human mind. The illustrious author of the "Essay on the Human Understanding" is generally considered to have commenced his work in the year 1670, more than 600 years subsequent to the date of the *Zád-ul-Musáfarín*, and not to have completed it till sixteen years afterwards.

where ; and whom, as the giver of sense, we are permitted to call Omniscient and All-seeing ; his is the eternal power of decree—it is ours to submit and obey ; and to the messenger of truth, the prince of all prophets, Mahommed the prophet of God, be endless gratulation ; to him that is guide and instructor in all that is virtuous in understanding, and in language true.

First we shall speak of time, as the obstetric medium through which the varieties of vegetable and animal creation throughout the universe are ushered into life, and made to appear under particular forms ; such forms being prior to element which belongs to nature. The principle of production is endowed with life, but the element is perishable. Time, again, is included in duration. Every thing allowed to arrive at perfection, whether in man or other than man, is finally also destined to perish, through the same means and gradation by which it was produced : for thus, in the sacred volume, has Omnipotence pronounced, “after decay comes reproduction, and after reproduction decay.”

Of every person endowed with intelligence, it is the duty to search into the nature of his existence, whence he came and whither he shall go, with a prudent foresight to reflect that here he is engaged on a toilsome journey, in which there is neither delay nor standfast ; for while in this world he is under the influence of a two-fold action—that of increase and diminution, from which there is no exemption.

But there can be no action or motion unconnected with time, and time is a thing which moves in two separate sections, that which is past and that which is not yet come ; and between these two there is an interval which is incapable of division—like the line between the sun and the shade, which belongs neither to sun nor shade. This interval between the divisions of time is known in Persian and Arabic by two different names bearing the same signification : *now*—which has neither distance nor extension, belonging neither to time past nor that which is to come. Such denomination of interval which we have called *now*, becomes, however, necessary to mark the progress of bodies in motion. And it is by the same interval that things in motion are to be discriminated in the revolutions of time. The subject will be further spoken upon in its proper place in the course of this work.

Through life, therefore, man will find himself placed in this interval

of *now*. The time past is ever on the increase, in proportion as these intervals are adding to it; every hour and portion of time being made up of the numerical parts consisting of those transcient intervals, *just as in numbers the aggregate of millions* is but the accumulation of units one upon another. In a corersponding degree, also, will the division of time to come be diminished.

If, then, he has common prudence, man will remember that he is just in the situation of a traveller, in whose journey there exists not the possibility of arresting his progress, not even for the twinkling of an eye, until he has fulfilled the measure of that line which is the allotted time of his existence, made up of the interval points to which we have now repeatedly alluded. In such circumstances, the traveller, if he is wise, will seriously enquire whence he came and whither he is going; and having, as far as possible, ascertained the former point, to prepare himself for the knowledge of what in future he is to be, it behoves him to make the requisite provision for his journey; for without such precaution his course will be full of peril. For that we are but passengers here on earth, God Almighty has mysteriously pronounced, when, in his word, he commands us to lay up provision.

This being the case, and observing that the greater part of mankind are regardless of what so deeply imports them—that, ignorant of the truths of their common religion, they have held them in contempt; not standing upon the types and demonstrations, and rejecting with equal obstinacy the occult and mysterious meanings of God's word; that, adhering to the corrupt and absurd speculations of their own fancy, they have blindly fallen off from all that is just and benevolent; that, arrogating to themselves the supremacy in accordance with their own conflicting lusts and propensities, they have produced a serious dissention among the faithful; and finally, dared, under the name of *kirámati*, to braud with the stigma of imposture, infidelity, and heresy, all those who, better instructed in the principles of divine revelation, better sighted to penetrate to the sources of truth, are labouring to separate the things essential to our welfare in eternity, from the senseless vanities of this perishable world. Observing, I say, all these alarming circumstances, I conceived it incumbent upon me to compose a work relating to the subject; and, in conformity with my views, I have bestowed upon it the title of *Zád-ul-Musáfarín*, Provision for Wayfarers, imploring the grace of God to aid me to its completion.

In the first place, I shall undertake to demonstrate to the discreet and prudent, by proofs and arguments both verbal and intellectual, from whence came man, and to what he shall return. From the inspired assertions of the Korán to make it manifest, that the Prophet's mission was designed to awaken mankind from that sleep of ignorance in which they had for a long time been previously immersed, and to bring those unacquainted with true religion, and so enslaved to their own conceptions, inclinations, and opinions, as to have lost all knowledge on the subject of genuine theology, and of the mysterious meanings conveyed in the code of divine relation, once more under the controul of the true faith : for of all prophecy such must ever be the object. And it is sufficiently known that the subject of the Prophet's grievous complaint to his Maker was, that the people evaded the meanings of the Korán, and adhered to the visionary speculations of mythology.

Of the intelligent reader, in the mean time, I would intreat that he will make this book the subject of his deep and most serious reflection, so as to secure from it an unfailing provision in his perilous journey through life ; and having so done, he will peradventure think with me, that to have introduced or promulgated a study at once so delicate, difficult, and indispensable to human happiness, is just as if a man were to excavate a deep well, or to construct an aqueduct, to convey from the bowels of the earth to some arid plain, a full supply of the refreshing stream, furnishing, at the same time, to the thirsty traveller the welcome remedy against otherwise inevitable perdition. Let him nevertheless, as he values the inestimable boon, carefully guard the fountain against all access from the irreligious idiot, lest its waters be polluted or troubled by the attempts of folly and imbecility ; nay, lest peradventure it be irrecoverably choked with dust and clay. For the rest, may God so prosper the reception of this work, as it is intended for the instruction of his creatures in the pursuit of what is just and good.

Thus far the prefatory chapter of Nasar Ibn Khusru has been given at length. What follows must be considered an abridgment composed by the compiler of the dictionary, Hakím Nur-ud-din Shirázi.

DISCOURSE THE FIRST.

I HAVE chosen the faculty of speech, which is of the things belonging to the present state of existence, for the leading subject of disquisition in this work, because my principal design is to certify, as well as I am able, to the satisfaction of the intelligent, from whence man came into this world, and where he shall exist in future: a knowledge equally difficult and intricate, whether to discuss or discover. So far, however, is manifest, that one intelligent mind must communicate its knowledge to others, either through the medium of speech or of writing; and the aspirant after knowledge must acquire his information from the learned, through either of the two senses, hearing or sight: the former when we speak, the latter when we write.

Now the speaking medium is so far more noble than that of writing, inasmuch as, through the faculty of speech, the advantage is instantaneous to those present—while through that of writing the profit is remote, and only to those who are absent; and the present must always have the precedence over the absent in the acquirement of knowledge. It is understood that the medium of communication between the present and the absent is the faculty of writing. But the medium which secures an interchange of ideas between the learned and the worthier class, that is, those who have the precedence, is nobler and of a more subtle character than that which is employed between them and the less worthy. It is therefore manifest that speech is more excellent than writing.

Further, the individual present is enabled, through the medium of speech, to obtain from him that speaks information on what would otherwise have been unknown to him; and the speaker is enabled, in other terms, to explain to the hearer what may be less obvious in what is spoken. The readers of a manuscript, on the other hand, when any difficulty occurs, possess no means of explanation when the writer is not to be found; or, though accessible, yet may it happen that he is a person unacquainted with science, being nothing more than a simple copyist. Moreover, speech is the narration of what is lodged in the mind of an intellectual being. That which is written, therefore, is the narration of a narration of that which passes in the mind of the intelligent, whose speech is the narration itself. In other words, speech is the original, and writing the copy; writing is the shell, and speech the kernel of the shell. And thus again it is

demonstrated that speech is nobler and more refined than the faculty of writing.

But the mind of the intelligent is in itself essentially above the necessity of either speech or writing, his want merely arising from the desire of conveying knowledge to others, whether in speech, by means of the tongue, or in writing, by means of his fingers. Speech is, moreover, less obnoxious to doubt or ambiguity than is experienced by the hearer of what is read, or the reciter of what is written; because in writing there are many letters bearing a close resemblance to each other to the eye, while to the ear they are not all alike, as may frequently be observed when the writer sets down such words as خبر جز حریز *khayr, har, jaz,* and *khaber*, which without the diacritical points, are exactly similar, and in which the reader may reasonably doubt as to which the writer designs to indicate, while the hearer entertains no doubt on the subject: neither does he suspect that, under words which the writer has set down in characters so much alike, something else may be intended than meets the eye. Hence again, I say, and I trust have sufficiently demonstrated, that speech must always have the precedence over writing.

Metaphorically, speech is spiritual, and writing corporeal; and I will also say, that speech is to writing what the soul is to the body; for do you not perceive, in the instance of one who searches into the meaning of things, and it must be for his use that the thing is written, that speech furnishes to the inquirer that information which relieves him from the necessity of perusing what is so written.* I say further, that as speech is the soul of writing, so is meaning the soul of speech; for do we not observe, that when he who hears has secured that meaning which is the basis of speech, he no longer needs either letter or words, but throws all aside, and seizes on the meaning alone.

From these considerations it becomes further manifest, that meaning is

* The construction of this passage is so perplexing, that I am compelled to give the lines in the original: *نه بینی که چون از نبشت قول مرجو ینده انمعنی را که نبشت از بهر اوست خبر* which, in other words, may be rendered to the following effect; "Do you not perceive that, as by the written medium the searcher after meaning, for whose use the thing has been written, is rendered independent of speech, so is the same, through the perusal of what is written, rendered equally independent of oral information." How we are to understand this as an illustration of the fact, "that speech is to writing as the soul to the body," it would be difficult to explain.—D. P.

the soul to that which is the soul of writing, and speech is to meaning as the body, just as writing is the body to speech; in other words, speech embodies meaning, as writing embodies speech. From the same considerations it must appear that meaning has a more immediate connection with speech than it has with what is written. But the object of both writing and speech is the meaning of a thing; and that which is nearest to the object is nobler or more excellent than that from which the object is more remote. Now the object of every wise man is the meaning, and we have demonstrated that speech is more closely connected with meaning than what is written.

If it should be asked, "what then is speech?" the answer is, "speech is an arrangement of words or names, under which is invested some certain meaning. Should it be asked, "what is name?" I would say that it is composed of letters, regularly united, to indicate certain essential principles or sources of things. And should it further be demanded, "what, then, is letter?" I should answer, that letter is in the same degree of relation to name, as the point is to a straight line. A letter has in itself no meaning, although a meaning may exist under letters, when produced by intelligent minds, in combination, and under names generally known to a certain class of men, just as a point, which has no extension until it is manifested in length, when it becomes a straight line; and this consists, we know, of points accumulated together, *ad infinitum*. Of length I shall observe, that is called the primary extension.

In the next place I shall state that, to the specific form of the faculty of speech names or words are the matter, and to the specific forms of names letters are the matter; just as to my shirt a piece of cloth is the material principle, and the material principle of a piece of cloth is a certain vegetable production called cotton, of which the material principle is in nature itself.

Further, I shall state that the faculty of speech can exist no where but in man, through the medium of sound, and there can be no sound but that which is produced by the escape of air between two substances in collision. Until, however, sound has obtained extension, the specific form of speech cannot rest upon it; that is to say, until the air included within certain substances by which it is retained, shall, by collision of such substances, be forced to escape through some channel, narrow and confined,

that lengthened or protracted sound necessary to speech cannot be obtained.

Thus, a human being draws breath by means of the lungs, and retains it in the hollow of his chest; then, without discharging the air thus received into the chest, it is protruded by the same organ of the lungs through the natural channel of the throat, and the sound produced becomes either fine or more powerful, just as the throat is contracted or widened; that is to say, by contracting the throat the sound becomes finer, and by widening becomes stronger. The sound then entering the mouth, it is borne about between the palate, teeth, and lips, until being arranged into words, part escapes through the nostrils, and part through the teeth and lips, thus expanding into speech, and ushering into light what was before concealed.

Then I say that protracted sound may be compared to a straight line extended out, which the speaking breath, or rather the reasoning faculty, breaks into parts between the tongue, teeth, and lips; and such parts being again shaken into links or nodules, under various figures, such nodules and figures become words—but to the ear only, not to the eye; and each three or four words being more or less shaken, they assume the specific form of some certain name or thing, indicating, to such as are acquainted with the denomination some particular and essential principle. When they reach the ear these words have been adjusted into order, and the operation thus accomplished by the reasoning spirit, or breath, upon such forms, might be said to be the impinging of sound upon matter, *هيو لي*.

What I have above advanced with respect to lungs and air, to throat, breast, palate, teeth, tongue, and writing, must be understood as considering all to be adjusted into form and order through the operation of the same reasoning spirit, or breath endowed with reason; which having constructed all from the parts of a straight line, finally reduces them into known and intelligible nodules and figures, much in the same manner as it produces on protracted sound. But though the reasoning spirit or faculty is here said to operate on the parts of a straight line, which may be considered to resemble a full and lengthened sound, the operation, in the one case, is conducted in a different manner from the other; for in the instance of the straight line it is conducted through the medium of the hand, with the implements of pen and ink, and paper. Now the hand, it is to be observed, is considerably removed from the abode of the reasoning spirit,

which is in the brain ; but in the act of speech, the energy of that spirit is exerted upon the lungs, the breast, the throat, mouth, tongue, and lips, all of which are endowed with life, and all more nearly situated to the brain, the central abode of the reasoning spirit. It is for these reasons that the object of the reasoning faculty is more perfectly known to the hearer, through the medium of speech, than to him who reads, through the medium of what is written.

Since, then, speech is more immediately derived from, and in situation more closely connected with the reasoning spirit, than can be alleged of the faculty of writing, the operation of the mind being more remote from its object, through means thus artificial, which means, at the same time, are destitute of the vital principle, I say that speech is like the immortal spirit, while writing is the type of the perishable body ; and therefore I contend that the searchers after knowledge will sooner arrive at their object through this living and spiritual medium of speech, than through the other corporeal and perishable one of writing. Such is my discourse upon Speech.

DISCOURSE THE SECOND.

ON THE FACULTY OF WRITING.

WRITING is included among the mathematical sciences, and is peculiar to man alone, to the exclusion of all other animals ; for other animals, however destitute of the faculty of reason, participate with man in the power of speech and of mechanical contrivance, but not so in writing. Thus there are animals which participate with man in language, the greater part of them making use of particular calls to one another, which are to them in the place of speech to mankind. Most irrational animals also will utter, in safety and repose, sounds very different from what they do in alarm or weariness. The domestic fowl, for instance, has a call peculiar to itself, by which it makes known to its mate its sense of peace and enjoyment ; and the key in which it warns its kind of the approach of danger, when the bird of prey is hovering round, is distinguishable by all. The notes of the male, when inviting it to its roosting-place, or to lay its egg, as if in the voice of command to deposit its burden, are not less distinct and intelligible.

These various sounds, then, by which its manifold wants are made known to its kind, are to the animal in the place of speech.

In mechanical contrivance, also, the irrational animal partakes with man. In the instance of the spider, which weaves its own dwelling ; in the bee, which fabricates its abode with such elaborate symmetry and regularity, without the appliance of clay. We are acquainted with birds, also, which perforate even timber for their abiding places ; and with others which build their nests of clay, with doors to them, through which to lodge their store. There are moreover other animals which, in contrivance and skill, man, with all his boasted pre-eminence, would in vain endeavour to imitate : such is the silkworm, which spins its thread from the leaves of the mulberry ; such the bee, which compounds its honey from the blossom ; and such the shell-fish, which concocts its pearl from the fluid of the ocean. Others might be mentioned, but this is sufficient to shew that, in artificial contrivance, there are animals not less endowed than man ; but in the faculty of writing there is no animal that participates with man.

Writing, then, allowing the precedence to speech, is peculiar to man alone. But speech is more universally common to man ; because, though every writer is a man, every man is not a writer ; and every writing is a speech, though every speech is not a writing. He, however, that is master of both faculties, both peculiar to the wise and prudent, approaches nearest to the perfection of manhood.

Again, speech stands in the place of writing, to which the tongue of man supplies the pen ; the lengthened sound or voice is in the place of a right line, and to letters and words the ambient air supplies the tablet, the air reflecting, though it does not retain impressions : and hence it is that speech is so evanescent.

Writing, on the other hand, may be described as that sort of speech to which the pen supplies the place of tongue ; a right line that of protracted sound or voice, the figures and words of which may be permanently retained on any smooth surface, whether of earth or clay ; for clay, we know from experience, is capable of retaining impressions when inscribed upon it.

The peculiar excellence of writing, however, consists in this : by means of the pen it conveys information from the wise and intelligent to those that are absent, and from the past to future generations ; whereas speech is of advantage only to those present on the spot, and that by verbal commu-

nication through the tongue. Another excellence peculiar to what is committed to writing, is its being conveyed in a language in which the characters are in the place of sound ; and what is spoken by the writer remains unchangeable so long as the character stands unobliterated. The writer having thus placed himself as much beyond the power of disavowal, as if the utterance had occurred in the hearing of any number of witnesses.*

Writing then, is that sort of speech which is self-enduring after the speaker shall have ceased from speaking : furthermore, the words and figures that are written are to the eye what the words and figures that are spoken are to the ear ; but there exists before the eyes of him who cannot write a veil to which he that can write is a stranger. Nevertheless, both are equally capable of seeing the forms of words and letters, as of other things visible to the eye ; and this is the case with him who hears a conversation, and yet acquires no knowledge of the thing spoken of, neither collects any meaning from the sounds which strike the ear, while another both hears the conversation and comprehends the meaning. Both these parties are hearers in appearance ; those who in words or speech do not comprehend the meaning, cannot be well considered as having heard either word or speech, and must be content to collect the meaning of what is said from others ; just as he who in a piece of writing does not comprehend the design of what is written, cannot be said to have seen the writing ; and just as one that in common sees as well as another, and yet in some particular cannot be made to see, may be considered as blind, since, in this respect, he foregoes the advantage of vision. In the same manner, he who hears what is said equally well with another, and yet will not attend or understand, may be considered as deaf, and having foregone the advantage of hearing,† and must accordingly submit to the superiority of that other.

From what I have stated, it must appear that among mankind, with eyes to see and ears to hear, there are many nevertheless who are blind, and many that are deaf : we have indeed a passage in our sacred code, which compares those who possess the power of speech, and sight, and hearing, in

* This passage is so ambiguously expressed in the original, that it has been difficult to give it any sort of literal translation, the reader must judge, پس کسی که آواز شنود کان همی شنود منکر

ننواند شدن که من این همی نکویم

† همچنانکه کسی مر گفت را با دیگری برابر شنود و همی نشنود او کر باشد واضافت او بران دیگر کرده شود

such circumstances, to the dumb, the deaf, and the blind ; a proof that man requires both eye, and tongue, and ear, other than what he possesses in common with his fellow creatures.

I shall lastly state, that speech is the sign of reason, and reason is to the soul the essential principle, as writing is the manifestation of reason produced. Hence it is, that either of two intelligent persons, when so disposed, can invent a writing which none but himself can read, and a language which none but himself shall comprehend. So also a child, when the speaking faculty impels, is observed, in his efforts to speak, to give names of his own to limbs or members of which he has not learnt the names. But a person who has no knowledge of writing makes no attempt at writing, though the latter be an attainment to be acquired by human application, while speech or reason is the spontaneous gift of the Deity.

He that is intimate with the arrangements and gradations of mathematical science, soon finds that each separate science opens to him another eye and another ear, and furnishes him with another tongue, with neither of which he was before acquainted. When a man disregards the dictates of wisdom, and will neither submit to labour nor study in the pursuit of knowledge, the eye is closed to him by which he might contemplate the figures in geometry, and so is the ear against hearing the arguments and decisions of the judicious ; and the senses of sight and hearing, which he has received from his Creator, are to him thus rendered unavailing.

DISCOURSE THE THIRD.

ON THE EXTERNAL SENSES.

THE mind of man acquires the faculties of speech and writing, which are the sources of knowledge, through the medium of the two senses of sight and hearing : hence I have taken occasion to enlarge on the external senses in general. The five senses in the body are to the mind as so many instruments by which it derives its comprehension of things. Among the senses, some are however of greater excellence or importance than others. This superiority consists in their greater or lesser tendency to good or evil ; in their effect to enable the animal to seek that which is good, and to avoid that which is pernicious.

But the superior excellence of one sense above another in the irrational animal is different from what it is in man. In some cases it may be similar, while in others it is the very reverse. In the irrational animal I shall then say that the sense of touching is the more perfect, because it pervades the whole body; the more useful, because it enables the animal the more readily to perceive and avoid the dangers which might otherwise prove its destruction, and through the attraction of the sexual intercourse to seek its mate, and in the act of procreation to preserve its species from extinction. In the sense of taste the usefulness to animals consists in its enabling them to select their food.

But the sense of touching in irrational animals excels that of taste, inasmuch as in them the sense of taste is peculiarly feeble. Being little capable of discriminating flavours, it is through the mere operation of their digestive powers, and the cravings of hunger, that they become inclined to their food. That the sense of tasting does not enable them to distinguish that which is pleasing from what is disagreeable, is particularly observable in fish and granivorous birds, which swallow their food without mastication. By the sense of touching, on the other hand, they are directly able to reject that which is injurious or hurtful, and, as already observed, disposed to pair and continue their species.

The sense of hearing is to irrational animals useful, but in a small degree, since there are many animals entirely destitute of it: such are serpents, fish, ants, mice, locusts, some birds, and many others that might be mentioned. But being unnecessary to their existence, and to the powers of propagation, to animals the most important property, it has been thus denied them.

Of the sense of smelling, the advantage to animals consists in its enabling them the better to distinguish in their food that which is wholesome from what is noxious or injurious—to reject among vegetables that which is poisonous, and in water that which is salt or otherwise deleterious. By this sense it is that the animal distinguishes in vegetables that which is destined for its peculiar sustenance. In the sense of smelling, indeed, it is considered that irrational animals excel beyond all others; for do we not see that it is by the sense of smell that the pointer or spaniel discovers its prey in the flood or on the field? that the industrious ant in the earth perceives the grain of corn scattered at its door, and is thus enabled to convey it to his nest.

Numerous are the benefits which the irrational animal also derives from the sense of sight, for by this among animals he distinguishes his natural foe, just as by that of smell he discriminates what is noxious among vegetables. It is by the sense of sight, also, that he finds out his friend, and that he avoids the fountain, the fire, and the flood, wherever it may be the terror of his species.

To the rational mind, however, the sense of hearing is paramount to all the other senses; for the pre-eminence of the reasoning animal, above all others, consists in its capacity of acquiring knowledge. The individual who does not possess the sense of hearing, can neither arrive at the faculty of speech, nor attain to any skill in mathematical science nor in the sacred mysteries of theology. Nay, the man that is deaf, and cannot speak, may be said to be cut off from the scale of human beings.

But the sense of smelling is to the rational soul inferior to all the other senses; because from one of the greatest evils of which this is the source, we are relieved by any deficiency in that sense; for although we may be thus abridged from the enjoyment to be derived from fragrant substances, we are, at the same time, in the situation of him who, without the sense of smelling, is safe from the annoyance of what is putrid or offensive.

The sense of hearing is, to irrational animals, or such as are destitute of the faculty of speech, the least important of the senses, as that of smelling is the most valuable; while in man the sense of smelling is the lowest, and that of hearing the most important. The sense of tasting is also most delicate and acute in the human species; for do we not observe that, through the medium of this latter sense, the appetite of man is attracted to that which is most delicious in flavour—that pleasure which, after experiencing the cravings of hunger, he is thus qualified to enjoy, in a degree to which the irrational or dumb animal must be a stranger.

But the pre-eminence of the rational over the irrational animal is that which he derives from the possession of knowledge, in which the irrational can have no participation. Now the mind of the uninformed man, who may be considered not far removed from the condition of a brute, must derive its knowledge from the intelligent, who may be considered as in the scale of angels, through two different channels: one, the sense of hearing, which comes under the semblance of speech; the other, the sense of sight, under the semblance of writing, when instruction has been previously conveyed:

and thus does he ascend from the scale of the brute creation to that of angels. In man, therefore, these two senses bear the pre-eminence over the other three.

Of these, however, the sense of hearing has the preference before that of sight; because, although a man be born without this latter sense, he may acquire the faculty of speech and reason through the sense of hearing alone, and so attain to a proficiency in many branches of science, supposing that he is in perfect possession of that sense, excepting only that he cannot form any precise idea of colours or figures; whereas, if a person be born of his mother without the sense of hearing, he will never be able to speak, nor acquire any sort of science, be his sense of sight ever so perfect, excepting that by the aid of signs and example he will be able to acquire some mechanical craft.

But with respect to the knowledge to which we may attain by the nature of the reasoning principle, the peculiar excellence of the human mind consists in its coming prepared from its creation for the acquirement of science in all its branches; just as the animating principle in nature, fraught with the germ of growth and increase, sends forth its productions prepared for growth and increase. Thus the perfection of this animating principle in nature, in its operation on the stone of the date, is seen in having rendered this stone capable of growth, and of producing a noble tree.

While in the present state of existence, the rational mind or spirit acquires all its knowledge by means of the faculties of which we have spoken; and these faculties are brought to operate through their own intrinsic excellence. The senses of hearing and sight are, however, to the rational animals, the noblest of their faculties; but to animals without speech or reason, these two senses are attended with none of the benefits which we have endeavoured to enumerate, those benefits being destined alone for the rational mind.

He that has ascended to the highest stages of science will have found that at every step his sight and hearing are gradually on the increase; for do we not perceive this in mathematics, when a man has entered the class of arithmetic, and he is asked what is the primary and what the secondary in numbers? When he becomes instructed that in numbers some are defective, as the number four, the parts of which are a half and a fourth, being three less than itself by one when added together; some are redundant, as in the number twelve, the parts of which are a half, a third, a fourth, and a sixth,

which, when added together, make six more than itself [rather three]; and some are medial, as in six, of which the parts are a half, and a third, and a sixth, which added together make six like itself; the consideration of these numbers will discover to him what he did not previously perceive. So, when he is instructed that every number is composed of the halves of its two sides when added together, he will not comprehend the fact until further explained. But when they cause him to hear, for example, that four is the sum of the half of its two sides,* five and three, added together, the half of five being two and a half, and the half of three one and a half, which, added together, make four, he not only hears but his sense of hearing is materially improved.

Furthermore, when he comes to the geometrical branch of the sciences, and it is stated to him that the product of two sides of a square, when added together, will be found equal to the product of the sectional parts of such square, he will neither comprehend the statement nor see the effect, until they place before him the figure of a square, divided by two right lines into four sections, and each section is again divided diametrically into two parts, so that a square shall be produced from these four sections, each side of which square, being the diameter of each of the sections of those four sections, shall be equal to two.† Thus shall he be made both to hear the statement and perceive the figures; and thus shall he have acquired, by his progress in this science, a sight and hearing of which he was not previously in possession.

Such is the case with relation to the improvement in sight and hearing which a man will acquire as he advances in the different branches of science; and thus he that ascends the higher in the scale of knowledge becomes hourly more perfect both in sight and hearing: while he that remains stationary continues both blind and dumb, in the condition of the

* Probably meaning the figures on either side of it.

† I have been quite puzzled with this passage, and therefore must give it in the original!

که مضروب و دو ضلع مربع چون جمع کرده شود با مضروب قطع مربع برابر آید نداند که چگونه
همیگونندش و نه شود مرا ترا مگر انگاه که بیاورندش و شکل مربع که مرا ترا بد و خط بچهار قسم
است کنند و باز هر قسمی را ازان بخطی که قطر او باشد برو پاره کنند چنانکه مربع بی پدید آید
ازان چیار مربع که هر ضلع ازان مربع قطر هر مربعی ازان چیار مربع متساوی بد و بیا بد
The proficient in mathematics will be able to state this with the proper precision: it is probably
designed to indicate that a square is equal to all its sections, however subdivided.

brute beasts, and though he possesses in appearance both eyes and ears, can neither hear or see what is said or shewn to him by those who are more prudent than himself;—according to what is recorded on sacred writ, of the idle and negligent sinner.

It is however to be observed, that he alone is to be stigmatized with the guilt of negligence, who is known to neglect a duty which he possesses the means of discharging. But the attainment of knowledge is within the power of every man, and he that is behind-hand, or remiss in the attainment, may with justice be condemned as negligent in a very culpable degree. The path of the prudent man leads him to the knowledge of the works of his Creator, and what best contributes to display them—to approve and embrace the different branches of science wherever they are attainable, but more particularly where they lead to his instruction in the mysteries of theology, in its genuine source among the inspired writers, the prophets sent from God.

In short, the wise man will not expose himself to the awful risk of eternal misery by a reckless abuse of his allotted time, but exert himself to obtain for his eyes and ears both sight and hearing, through the diligent study of those sciences which treat of the power and attributes of the Deity, so as both to hear and perceive the essential truths indispensable to his welfare here and hereafter; to receive instruction in the knowledge of God; and in contemplating the wonders of his creation, not to rely upon the eyes and ears which he possesses in common with other animals:—and this, as he hopes to attain to the perfection of humanity, and to escape from the condition of the brute.

DISCOURSE THE FOURTH.

ON THE INTERNAL SENSES.

THE meanings or ideas received from the faculties of speech and writing are conveyed to the mind of man through the medium of the internal senses, through which it is enabled to entertain, deliver, or hold possession of such ideas. The external senses are, however, necessary to produce sensation, and the internal to excite reflection. Sensation is derived from speech through the medium of sound, as by words, and syllables, and letters spoken

out, as well as from writing, through words and letters written down. Intellect, or reflection, is produced when ideas committed to writing are enunciated in speech, or exhibited to the eye when words spoken are committed to writing.

The internal senses of the mind are such as the following :—imagination, conjecture, reflection, memory, retention, that is retaining in memory. We have already observed, that he who is born blind cannot, in imagination, make any conjecture as to form or figure, any more than he that is born deaf can have any notion as to the nature of sound or echo. It is evident, then, that the internal senses of man are directed through the external.

One of the internal senses is conjecture, or suspicion,* which gives motion to reflection† the primary movement of the understanding.‡ After conjecture follows perception;§ but there can be no conjecture where there is no perception. Conjecture is, however, more liable to error than perception, because man conjectures that many a thing is salutary which is pernicious, and many a thing pernicious which is salutary. The difference between perception and conjecture is, that perception operates only while a man is awake, whereas conjecture is at work whether he is asleep or awake. By his perception, also, man feels only what is present, while by conjecture he can view both what is present and absent.

Conjecture, which must here be taken for instinct, is to the irrational animal what intellect,§ or reason, is to man, for conjecture is more feeble in its operation than reason. The intentional movements¶ of man proceed from reflection, which is an operation of the understanding, while those of the irrational animal proceed from conjecture or instinct; and this is a movement or affection by which the animal is led to select its food, to seek its mate, and to avoid its adversary.

Conjecture again, or instinct, is a faculty which receives its perception through the medium of the air; or it is the faculty which conveys to the senses the impressions with which the air is fraught. Imagination** is the faculty which distinguishes from matter †† the forms introduced through the senses, and retains them; and this is seated in the anterior part of the brain. It is moreover the faculty of the imagination that consigns the forms of

* وهم
عقل

† فكرت
حركات تصدي

‡ عقل
قوة متخيلة**

حس
هیرلی ††

things imagined to the memory,* which is one of the internal senses, and its seat is in the posterior part of the brain. The faculty of remembrance† searches for that form which has been so consigned to the memory; for memory is prior, and then remembrance; because until a thing has been retained in the memory there can be no remembrance of it.

The imagination, or imaginative faculty, consigns to the memory such forms or images as the individual, through the delineations of speech and writing, distinguishes from matter; and the memory retains such forms in possession: but every form or image which penetrates the memory subsequently to, or perhaps independently of the imagination, must be conveyed to it in a written shape, and the memory recognizes its identity; or being written parallel, it perceives some difference.

Now when the faculties of the mind have found a place there where there exists no bottom, forms to infinitude may be lodged therein, although there be a separate place for separate forms (or ideas).

The imagination then, when it distinguishes forms from matter, may be compared to a man who in the act of writing distinguishes the forms of spoken language from the matter, which is air converted to sound—that is to say, the air which transmits a sound in speech; and who discriminates the written form from matter consisting of paper and ink, inscribing these forms without matter on the faculty of the memory.

Now that which is thus accumulated in the human memory may not unaptly be considered as mental scripture, or record, which, with the pen of the imagination, the mind has inscribed on the tablet of the memory: for do we not observe, with regard to the memory, that when a man has learnt by heart some fact that has been committed to writing, all that has been written, in word, or letter, or syllable, must have been in a manner engraven thereon. This, then, is nothing but the separate form or idea which the imaginative faculty, after having perceived the writing, hath so discriminated and engraven on the memory,.

The faculty of remembrance, reminiscence, or recollection, again, is that which reads such intellectual record, because the recollection can at will repeat such writing when lodged in the memory; and the fact thus remem-

bered will be found exactly such as it was when originally lodged in the memory, just as the thing committed to writing appears as at first written, without alteration. The mind then, through the medium of the faculty of reminiscence, is able to read that intellectual record inscribed on the memory by the imagination, without having heard a word or a letter brought out or recited aloud. In the same manner as when we have in memory a chapter of the Koran, or a passage from the poets, we are able to read or bring it to recollection, or, in recollecting, be sensible that it is deposited in the memory, without bringing out the words, or giving them utterance aloud.

It seems then manifest, that in the same manner as there exists such a faculty as external writing, the mind also possesses internally as well a species of writing, and the tablet on which it is inscribed ; just as, externally, there belong to it the subject spoken of and its expression, so are there both subject and expression internal. The subject and expression of the mind, and that which is externally disclosed, are equally matter reduced to form. Invisibly, therefore, these forms are separated, or rendered distinct, by the most refined of faculties, and these are the internal senses; the sensations and perceptions, or inclinations,* to whatever extent, finding therein sufficient and unlimited accommodation. Visibly, however, these material forms reside in the bodily feelings, and these are the external senses ; in which we cannot discover two things in one place, but only separately, or one by one, the sensations derived through the external senses crowding so much one upon the other, that their accommodation is extremely confined ; just as we find that two letters cannot be written in the same place without the one effacing the other ; whereas in mental writing, the numerous branches of knowledge, in all its variety, may be contained in one place, without either crowding or narrowness of room.

This discussion is designed to awaken the mind of the prudent man to the consideration of a mode of speech and writing widely different from that which the rational animal, by a protruded sound, inscribes on the impassible air ; or that which the same animal, through the medium of a right line, delineates upon the palpable earth. Until we come to speak of the speech and writing inspired by Omnipotence in revelation, a subject of

infinitely higher importance than that of which we have treated, he that is wise will ponder upon this.

On these and other considerations, that vulgar and absurd opinion which holds that a celestial angel is employed to register the actions of man in a volume, which is presented to him on the day of judgment, must be founded in impiety: and that opinion, moreover, which maintains that the angel Gabriel delivered the revelations of the Korán by *viva voce* communications to the Prophet, who is thus made to have received them through his corporeal ear, must be equally repugnant to truth and experience; because sound cannot be produced otherwise than by the escape of air from the collision of two bodies. But an angel is incorporeal—unquestionably a spirit—and a spirit has neither fixedness nor bodily place for either the retention or escape of air.

At the same time we can aver that the speculations of folly on this latter subject are repugnant to the express declarations contained in the word of God, which distinctly states that the bearer of divine revelation to the Prophet was a spirit, and a spirit we know to be incorporeal. That which is incorporeal cannot give birth to sound; and therefore neither voice nor sound could proceed from an angel, which is a spirit. It moreover informs us that the angel Gabriel descended upon the heart of the Prophet, at the same time that he made a visible appearance before his eyes; for thus the Prophet expresses himself in the following exordium: “This is the revelation from the Lord of all worlds, descending, through the ministry of the faithful spirit, upon the heart of the most retired of admonishers, and explained in the language of Arabia.”*

TWELFTH MYSTERY OF DISCOURSE THE THIRD.

To know the nature of the *Gharí*, and *Ghariál*:* that is to say, on the divisions of time, and the methods of admeasurement.

The *Ghariál* is an utensil of metal, seven times fused,† of a circular form

* انه لتزِيلَ رَبِّ الْعَالَمِينَ نَزَلَ بِهِ رُوحُ الْاَمِينِ عَلٰى قَلْبِكَ لِتَكُوْنَ مِنَ النَّذِرِيْنَ بِلِسَانٍ عَرَبِيٍّ

مبين

† كبريال and كهري

‡ حنٹ جوش whether this should signify seven-fold, or seven times fused, must be left to the oriental scholar. There can be little doubt, though thus imperfectly described, that this refers to the ordinary gong on which, in India, under the native governments, the *paraghari* or sentinel strikes the hour.

like a skillet or skimming-dish, but thinner, and of different sizes, large and small, which they keep suspended for use.

By the philosophers of Hind, the day and night have been divided each into four portions, denominated *Pahar*,* in the generality of places of not more than nine, nor less than six *Gharies* duration. The *Ghari* is the sixtieth part of the day and night; which sixtieth part is further divided into sixty other parts, called *Pal*,† and the latter again subdivided into sixty more, called *Bebal*‡

In order, however, to obtain some medium through which to calculate the progress of time, they contrived a vessel of brass, or some other metal, of the precise weight of one hundred *tángahs*,§ to which vessel they give in Persian the name of *Pankán*,§ for thus sings the philosophical poet Sennai; “Wherefore shouldst thou abide in a world which has for its measure a paltry *Pankán*.” In shape this is like a cup, narrowest at the bottom, twelve fingers deep, and as many wide at top, and perforated at the bottom so as to admit of the passage of a gold wire or probe, of the weight of one *másh*,¶ and five fingers in length. This cup they place in a pan of clear water, where it may be inaccessible to wind, or any thing else that can disturb or put it in motion; and thus, when the cup through the orifice at bottom has admitted water to the brim, they reckon that a *Ghari* has elapsed.**

Further, these philosophers have determined, that a man in health makes three hundred and sixty respirations in a *Ghari* of time. Six such respirations, therefore, must equal a *Pal*, or the sixtieth part of a *Ghari*; and in the course of the twenty-four hours, a man in health will have made twenty-one thousand six hundred respirations.

* پھر
‡ تانک

† پل
§ پنکان

‡ بیل
¶ ماشک

** This latter article can be no other than the *clepsydra*, or simple water-clock, anciently employed for the measurement of time; and with these explanations it will be easy to comprehend what is indicated by the strokes alternately slow and rapid, given to his gong by the sentinel at an Indian *darbár*. Thus two or three strokes given slowly indicate the second or third *pahar*; one to six or nine strokes, given more rapidly, mark the *gharies*; and from one to sixty strokes, still more rapidly, indicate the number of *pals* which have expired of the *ghari*. It may be necessary to add that a *ghari* appears to be exactly twenty-four minutes.

THE THIRTEENTH MYSTERY OF DISCOURSE THE THIRD.

To know what constitutes a *Koruh* ; or, on the measure of distances : taken from the *Akbar-námah*.

Our august sovereign, who holds the empire of the world, considering that the survey and measurement of roads have an essential influence on the prosperity of nations, has devoted much and serious attention to the subject ; it was therefore not without the fullest deliberation that he finally determined to estimate distances from place to place by the measurement of a *Korúh*,* each *Korúh* consisting of one hundred cords,† and each cord or chain of fifty royal *Gaz* ; also of four hundred poles,‡ or bamboos, each of twelve *Gaz* and a half in length ; either of which will give to the *Korúh* the length of five thousand *Gaz*.

Shír Khán had previously determined the *Korúh* at sixty *Jaríb*, each of three hundred *Sikandari Gaz* ; which obtained in the government of Delhi. In Malwah, the *Korúh* comprized ninety cords, or chains, each of sixty *Gaz* ; and in Guzerat, distances were estimated by the *Gau*, or ox, || that is to say, the distance at which the lowing of an ox may be heard at the hour of repose, or perhaps in the stillness of night ; which those who have had experience on the subject have determined to be fifty *Jaríbs*, or fifteen thousand *Gaz*. In Bengal, again, they reckoned by the *Dhibíah*,§ which has been determined to be the distance that a person swift of foot can run over in one breathing ; or, according to others, such a distance as one may dispatch while a leaf, which has been placed green in the turban, shall have withered.

In works of science of former times, treating on the properties of bodies and of distances,† we are instructed that the circumference¶ of the terrestrial globe is eight thousand *farsangs* ; but according to more recent authorities it has been estimated at six thousand eight hundred, both, however, calculating the *farsang* at three *korúh*. But the former authority estimates the *korúh* at three thousand *gaz*, of thirty-two fingers’** breadth each, and the latter at four thousand *gaz* of twenty-four fingers’ breadth.††

* كروه
§ دهبیه

† طناب
¶ محیط

‡ بانس
** انگشت

|| کاود

†† The result of both is precisely the same as to the length of the *korúh*, viz., ninety-six thousand fingers.

The finger's breadth is estimated by both as equal to six moderate-sized barleycorns, placed side by side, with the convex of one to the concavity of the other; and a barleycorn is moreover stated as equal to six hairs from the mane of a *Túrky* horse.*

By others, again, distances are estimated by the *barid*,† which is equal to three *farsangs*, each of three‡ *mils*, each *míl* consisting of two thousand *baia*,|| each *baia* of four *gaz*, and each *gaz* of twenty-four *asba*; § each *asba* again of six barleycorns, ¶ and each barleycorn as equal to six hairs of a camel's tail.

Referring again to the sages of Hind, we are further instructed that eight barleycorns, stripped of the shell and placed side by side on the ground, are equal to a finger's breadth; twenty-four such fingers' breadth making a hand, or palm; ** that four palms make what they call a *dand*, and sometimes *dehang*; †† a thousand *dands* one *korúh*, by them however called a *kos*; ‡ and four *korúh* one *jojan*. ||| Last of all, we have it stated, that one thousand paces of a woman, with a child in her arms and a jar of water on her head, are considered to be equal to one *korúh* or *kos*.§§

* It is obvious to remark, that the first statement, which gives eight thousand *farsangs* to the circumference of the globe, reckoning three fingers' breadth at eight-tenths of an inch, thirty-two fingers' breadth to the *gaz*, and four thousand *gaz* to the *korúh* or *kos*, would furnish a total of twenty-nine thousand and ninety English miles, or an excess of four thousand two hundred and fifty beyond the reality. But the second statement, of six thousand eight hundred *farsangs* of three *kos*, gives a total of twenty-four thousand seven hundred and twenty-six miles and four furlongs, being not more than one hundred and fourteen miles below the reality—that is, estimating the circumference of the globe at three hundred and sixty degrees of sixty-nine miles to a degree.

On experiment it will be found that six barleycorns are not more than equal to eight-tenths of an inch, and a *gaz* will then be nineteen inches and two-tenths, about the common cubit. We shall therefore be very near the truth in estimating the *korúh* or *kos* of Akbar at one mile one furlong one hundred and fifty yards and one foot, and the *farsang* of three *korúh* at three miles, five furlongs, and twenty yards.

| | | | | |
|--------|----------------|--------|--------|------|
| برید † | میل ‡ | باغ | اصبع § | جو ¶ |
| دست ** | دهنك or دند †† | كوس ‡‡ | جرجن | |

§§ According to this statement the *kos* would be equal to one mile four furlongs twenty-six yards and two feet; and a *jojan* to six miles one hundred and six yards and two feet—estimating the finger's breadth at eight barleycorns.